

Claims

What is claimed is:

1. An image processing device that reads an image signal from a solid-state image-pickup element where a plurality of unit pixels including a transistor for detecting a light signal and a photo diode are arranged in a matrix, the device comprising:

a first shift register connected to a line of the matrix for reading out an image signal, the first shift register selecting a line where a signal in response to carriers accumulated in an accumulation state for generating carriers in the photo diode in response to received light is read out;

a second shift register connected to a line for clearing an image signal, the second shift register selecting a line for clearing an image signal where residual carriers in the solid-state image-pickup element are discharged from the solid-state image-pickup element; and

a first output circuit that outputs a reset signal to the first shift register when a direction of scanning lines of the matrix is changed.

2. The image processing device according to claim 1, further comprising:

a second output circuit that outputs shift data applied to a line for reading out an image signal, based on which selection signal for selecting a line for reading out an image signal is output, to the first shift register, when a number of lines between the line for reading out an image signal and the line for clearing an image signal is equal to or less than a total number of lines in the matrix and a direction of the scanning lines of the matrix is changed.

3. The image processing device according to claim 2, wherein the second output circuit inhibits the output of the shift data, based on which selection signal is output, to the first shift register, when the number of lines between the line for reading out an image signal and the line for clearing an image signal is more than the total number of lines in the matrix.

4. The image-processing device according to claim 1, further comprising:

a third output circuit that outputs a reset signal to the second shift register when a direction of scanning lines of the matrix is changed.

5. The image processing device according to claim 1, wherein the second output circuit outputs the selection signal when generating an interlacing frame according to frame rate.

6. An image processing method of reading an image signal from a solid-state image-pickup element where a plurality of unit pixels including a transistor for detecting a light signal and a photo diode are arranged in a matrix, the method comprising:

forming a first shift register connected to a line of the matrix for reading out an image signal, the first shift register selecting a line where a signal in response to carriers accumulated in an accumulation state for generating carriers in the photo diode in response to received light is read out;

forming a second shift register connected to a line for clearing an image signal, the second shift register selecting a line for clearing an image signal where residual carriers in the solid-state image-pickup element are discharged from the solid-state image-pickup element; and

outputting a reset signal to the first shift register when a direction of scanning lines of the matrix is changed.

7. A solid-state image-pickup device, comprising:

a solid-state image-pickup element where a plurality of unit pixels including a transistor for detecting a light signal and a photo diode are arranged in a matrix;

a first shift register connected to a line of the matrix for reading out an image signal, the first shift register selecting a line where a signal in response to carriers accumulated in an accumulation state for generating carriers in the photo diode in response to received light is read out;

a second shift register connected to a line for clearing an image signal, the second shift register selecting a line for clearing an image signal where residual carriers in the solid-state image-pickup element are discharged from the solid-state image-pickup element; and

an output circuit that outputs a reset signal to the first shift register when a direction of scanning lines of the matrix is changed.